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## EUROPEAN PATENT APPLICATION

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54 **Souffle mix.**

57 A one package dry souffle mix comprising powdered egg whites, modified food starch, flour, leavening agent and leavening acid and the method for preparing the same. The resulting quick cooking souffle exhibits highly acceptable flavor, texture and stability characteristics and a delayed deflating time.

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**BACKGROUND OF THE INVENTION**Field of the Invention

5 This invention relates to a dry souffle mix. More particularly, it relates to a reconstitutable dessert souffle and the process for preparing the same.

Description of Related Art

10 The preparation of souffles has long been considered a time consuming and complicated operation with no assurance that the resulting souffle would be satisfactory. The preparation of a souffle is tedious due to the need for exact measurement of the relative amounts of the ingredients to achieve the desired texture and airiness of the final product. Furthermore, once baked, the souffle must be served without delay to insure its freshness and prevent its collapse.

15 Various attempts have been made over the years to develop alternates to homemade souffles so that souffles may be more readily available to the general public. U.S. Patent No. 3,043,700 to Szesesniak discloses and claims a two-package souffle mix in which the first package contains dried egg white and an egg white improving agent and the second package contains dried pregelatinized starch, a powdered fat, a protein and a low weight polysaccharide. The polysaccharide employed should be one which has been  
20 hydrolyzed sufficiently so as not to cause excessive viscosity in the mix, yet has been insufficiently hydrolyzed to change its polymer character so that it can still be attacked by diastatic enzymes in preference to the pregelatinized starch. When fresh egg yolk is added to the mix, the diastatic enzymes preferentially attack the low molecular weight polysaccharide, the starch is permitted to function in its normal manner and provide the required viscosity for the sauce.

25 In U.S. Patent No. 3,655,405 Karas et al., what is disclosed and claimed is a two-package, essentially fat-free composition comprising a first package containing a dry sauce mix and a second package containing a dry albumen mix. The dry sauce mix comprises a blend of regular starch, pregelatinized starch, whey solids and a flavoring agent. The dry albumen mix comprises a blend of egg white solids, a leavening agent and a stabilizing agent.

30 A freezable culinary preparation for sweet souffles is disclosed and claimed in U.S. Patent No. 4,068,013 to Brule. The frozen souffle comprises a homogenous mixture of a cooked pastry cream, uncooked chou paste and stiffly beaten egg whites in a volume ratio of about 1.5:1:1.5, based upon the volume of basic liquid of each ingredient. It is disclosed that the admixture of an uncooked chou paste to a cooked pastry cream to which is then incorporated stiffly beaten egg whites, results in a preparation for  
35 sweet souffles which can successfully undergo freezing, and can be kept in a frozen state for prolonged storage without any deterioration or alteration of flavor.

An alternate process for the preparation of a composition for frozen or deep frozen souffles is disclosed in U.S. Patent No. 4,428,971 to Havette et al. This frozen souffle is prepared from a base mass comprising a panada base, a flavoring base, egg yolk and a protein base. The panada base comprises fat, flour, water  
40 and cream; the flavoring base comprises vegetables, cheese, fish, fruit, and/or sugars; and the texturizing protein base comprises mixing egg white and lactic protein. The bases are mixed together without whipping the proteins, and carbon dioxide gas is incorporated in the mass.

SUMMARY OF THE INVENTION

45 It has now been found that a one package reconstitutable souffle mix can be made which results in a product of good texture and taste and with a longer deflation time. Specifically, a one package dry mix for a souffle comprising powdered egg whites, modified food starch, flour, leavening agent and leavening acid as its main ingredients is disclosed. Other ingredients which may also be incorporated in this single package  
50 mix include proteins, colors and flavorants.

The present invention relates to a single package dry mix for a souffle, particularly a sweet souffle. It has been found that a souffle which exhibits highly acceptable flavor, texture and stability can be made from a mix comprising powdered egg whites, modified food starch, flour, a leavening agent and a leavening acid. Additional ingredients may also be included with these primary ingredients, such as water dispersible  
55 protein solids, colors and flavorants. Previous to this invention, it was not possible to have an acceptable dry souffle mix which incorporated all of the ingredients in a single package.

The powdered egg whites used in the present invention consists of powdered egg white solids mixed with a whipping agent. It may be possible to use egg white solids as an individual ingredient and add a

whipping agent as a separate component. The powdered egg whites are present in an amount of from about 25 to 50% by weight, preferably about 30 to about 40%.

5 The preferred modified food starch used herein is Ultra Tex 4 (National Starch and Chemical Company, Bridgewater, New Jersey). This is a modified waxy maize which is a cold-water swelling starch. Various modified food starches, including pregelatinized starches, would also perform well in the present application. The modified food starch is present in an amount of from about 15 to about 30% by weight, preferably 15 to 25%.

10 Most types of flours have been found to be acceptable, with all purpose flour the preferred choice. It is present in an amount of from about 10 to about 15% by weight, preferably from about 12 to about 14%. A critical factor is the combination of leavening agent and leavening acid. Sodium bicarbonate has been found to be most effective, particularly when in an encapsulated state. By using encapsulated sodium bicarbonate any reaction which might occur between the leavening agent and the leavening acid is prevented during prolonged storage at high temperatures or high levels of humidity. This way, the leavening agent will be free to react at the required time, during the baking process. The encapsulated sodium bicarbonate is 15 present in an amount of from 5.5 to about 7.5%, preferably 6.0 to 7.0%.

The preferred leavening acid is a combination of dicalcium phosphate dihydrate and cream of tartar. The dicalcium phosphate dihydrate may be present in amounts of from about 9.5 to about 15% by weight, preferably about 10%, and the cream of tartar is present in an amount of from about 1.5 to about 3.5% by weight, preferably 2.0 to 3.0%. The most important factor is the ratio of leavening acid to leavening agent, 20 which is from about 3:1 to about 2:1.

Water dispersible protein solids may also be included to improve the texture and taste of the final product, preferably in the form of non-fat dry milk. This is added to the mix at a level of from about 5 to about 10% of the mix, preferably from about 7.0 to about 8.0%.

25 The final flavor and color of the product can be modified by the incorporation of various ingredients depending on the desired final product. Examples are the addition of cocoa powder for a chocolate product, lemons and citric acid for a lemon product, cheese, spinach, etc. Colors such as caramel and beta carotene may also be added.

Once the dry mix has been prepared, the preparation of the souffle therefrom is exceedingly simple. Specifically, the dry mix is placed into a bowl, to which a liquid is added. In the case of a sweet souffle, 30 sugar or an artificial sweetener may also be incorporated. Thereafter, the admixture is beaten and the resulting product is then poured into the appropriate containers and baked. In order to optimize the souffle product, the containers should be greased to avoid sticking and burning. The product may be baked by placing it directly in a conventional or convection oven, or it may be placed in a water bath before being placed in the oven. The water bath is the preferred method in that it results in a lighter, moister, airier 35 product. Baking without a water bath results in a product which has a less desirable, more rubbery texture.

Either way, it has been found that the souffle prepared from this mix requires shortened cooking times of from 10 to 30 minutes, preferably 15 to 25 minutes. The product which results from this process exhibits egg-like, soft, moist and light textures similar to those produced from homemade souffles made from scratch. An additional advantage is that the presently disclosed souffle is more stable and has a longer 40 deflation time than a traditional home baked souffle. Furthermore, the risk of failure during preparation and baking is very low compared to that normally found in a home baked souffle.

The following examples further illustrate the present invention, but are not meant to be limiting in any manner:

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**Example 1**

A dry mix for a chocolate souffle was prepared as follows:

Ingredients	Percent by weight
Egg white powder	30.6
Modified food starch	18.0
Encapsulated sodium bicarbonate	6.2
Cocoa powder	15.0
Cream of tartar	2.4
Colors and flavors	1.1
Dicalcium phosphate dihydrate	11.0
Flour	9.0
Non-fat dry milk	6.7

In a small bowl, about 50 grams of the dry mix was combined with 2/3 cups water and 1/4 cup sugar. It was beat on medium speed of a mixer for 2 minutes. The sides of the bowl were scraped, and then the mixture was beat on high speed for 3 minutes. The mixture was placed in a greased container and baked in a water bath for 18 minutes in a 350 ° oven.

The resulting chocolate souffle exhibited highly acceptable flavor, texture, stability and height characteristics, and did not deflate immediately.

**Example 2**

A dry mix for preparing a lemon souffle was prepared by mixing together the following ingredients:

Ingredients	Percent by weight
Powdered egg whites	35.8
Encapsulated sodium bicarbonate	6.5
Ultra Tex 4	21.0
Flour	13.3
Non-fat dry milk	7.9
Cream of tartar	2.6
Dicalcium phosphate dihydrate	10.0
Flavorants	2.9

About 50 grams of the dry mix was placed in a bowl to which 3 tablespoons sugar and 2/3 cup water were added. The admixture was beaten for 2 minutes at medium speed and then 3 minutes at high speed. It was poured into a greased baking dish which was placed in a water bath and baked in a 350 ° oven for 15 minutes.

The resulting lemon souffle exhibited highly acceptable flavor, texture and stability.

**Claims**

1. A one package dry souffle mix comprising powdered egg whites, modified food starch, flour, a leavening agent and a leavening acid.
2. The one package dry souffle mix of claim 1 which further comprises water dispersible protein solids.
3. The one package dry souffle mix of claim 2, wherein the water dispersible protein solids is non-fat dry milk.
4. The one package dry souffle mix of claim 1 wherein the leavening agent is encapsulated sodium bicarbonate.

5. The one package dry souffle mix of claim 1 wherein the leavening acid is a combination of dicalcium phosphate dihydrate and cream of tartar.
6. The souffle mix of claim 1 which further comprises flavors and colors.
7. The one package dry souffle mix of claim 1 wherein the powdered egg whites are present in an amount of from about 25 to about 50%, modified food starch is present from about 15 to about 30%, flour is present in an amount of from about 10 to about 15%, encapsulated sodium bicarbonate is present from about 5.5 to about 7.5% by weight, dicalcium phosphate dihydrate is present from about 9.5 to about 15%, and cream of tartar is present from about 1.5 to about 3.5% by weight.
8. A method for preparing a souffle comprising:
- (a) adding a liquid to a dry mix comprising powdered egg whites, modified food starch, flour, a leavening agent and a leavening acid to provide a smooth admixture;
  - (b) beating the admixture of (a); and
  - (c) baking.
9. The method of claim 8 wherein the souffle is baked for from about 10 to about 30 minutes.
10. The method of claim 8 wherein the souffle is baked from about 15 to about 25 minutes.
11. The method of claim 8 which further comprises non-fat dry milk in the dry mix of (a).
12. The method of claim 8 which further comprises flavorants and colors in the dry mix of (a).
13. The method of claim 8 where the baking is done in a water bath.



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# EUROPEAN SEARCH REPORT

Application Number

EP 92 11 7037

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	FR-A-2 615 697 (ENTREMONT SA)  * page 1, line 14 - line 22 * * page 6, line 5-9; table 1 * ---	1,2,6,8, 12	A23P1/16
X	US-A-3 459 560 (R.A. SHEA)  * claims 1-5,7,10,12 * * column 2, line 23 - column 4, line 14 * * column 4, line 70 - column 5, line 25 * * examples 1,2,4 * ---	1,2,6,8, 12 4,5	
A	US-A-4 592 919 (W.C. WINTERS) * claim 1 * * examples 1-6 * ---	1,7,9,10	
A	US-A-3 078 168 (W.T. BEDENK) * example 1 * * column 5, line 38 - line 47; example 5 * ---	1,4-7,8	
A	US-A-3 038 808 (J.R. PERROZI) * the whole document * ---	1,4-8	TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A	US-A-3 713 845 (R.A. KUFFEL) * column 1, line 50 - line 60 * -----	4,5	A23P A21D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24 FEBRUARY 1993	Examiner VUILLAMY V.M.L.
<b>CATEGORY OF CITED DOCUMENTS</b>  X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document  T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document			

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